

Contractors Training for Aboveground Stormwater Facility Maintenance

April 9, 2010

Presented by:

Ed Edmiston & Steve Pullum

Purpose of Training

- Review Procedures for Aboveground Stormwater Facility Inspections
- Aboveground stormwater facility maintenance and repair procedures
- Requirements for completing and finalizing a project



Contractor Requirements

- Maintain Confined Space Certification
<http://www.osha.gov>
- Follow Montgomery County Noise Control Ordinance
 - Call Mr. Steve Martin at 240-777-7746 for permit information
- Follow Montgomery County and/or Maryland State Highway Administration Work Zone Traffic Control Standards
 - Call 240-777-2190 for permit information

Types of Facilities



- Aboveground facilities include:
 - Ponds (wet or dry),
 - Wetlands
 - Sand Filters
 - Infiltration Trenches
 - Bio-Retention Facilities



Facility Data

- County maintains a database of all stormwater facilities, inspection reports, inspection photos, plans and asbuilts, etc.

Infor EAM List of Equipment Details

Equipment	11411 [Crabbs Branch Regional]
Type	Asset
Class	PDWT [Pond-wet, quality and quantity control]
Department	SWM-DEP [Owned & Maintained by DEP]
Manufacturer	
Serial Number	
Location	INSP-REG02 [Inspection Region 2]
Category	Installed
Status	

User Defined Fields

Sequence Number	259
Sediment Control Permit #	9001180692
Stormwater File Number	
Access Street	Redland Rd
ADC Map Book	23406
Owner	MCG
Property Management Co.	DEP
Property Street Address	Redland Rd
Property City	Rockville
Transfer Date	
Property Tax ID	01990426
Property Description	Regional
Easement Liber/Folio	
Covenant Liber/Folio	
Amended Covenant L/F	
GIS Drainage Area (Acres)	
Run Off Curve Number	95
Permit Approval Date	07/01/1980
Total Site Drainage Area	590
MD North (MD_NO)	475
MD East (MD_E)	750
State Watershed Number	02140206
MOP Land Use/Cover	50
Code	
MDE Structure Type	WP
Property Zipcode	20855
Remarks	Add GIS DA. AMB [Originally Maintained by WMD]; Structure_Details: High Hazard Dam

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Facility Data

Infor EAM Print Short WO Cards

Work Order	2088 (DEP) Spring Mowing of DEP Owned SWP	Scheduled Start Date	5/4/21/2008
Status	Work Completed	WO Type	PM
Parent Work Order		Class	ADMS
Department	SWM-DEP Owned & Maintained by DEP	Priority	
Alt Code	SWE-ASAD Spring Non-Structural Maint DEP Owned SWP	Warranty	N
Cost Code		Safety	N
Position Code		Equip Criticality	
Reported By		Assigned To	HSE
Project		Assigned By	
Standard WO			
Equipment	11411 (DEP)	Crabbs Branch Regional	
Location	INSP-REG02 (DEP)	Inspection Region 2	
Equipment			
Manufacturer			
Equipment Model			
Equipment Name			
Number			
Date Started		Estimated Hours	1
		Estimated Cost	0.00
		Actual Cost	0.00
		Date Completed	

Equipment Custom Fields

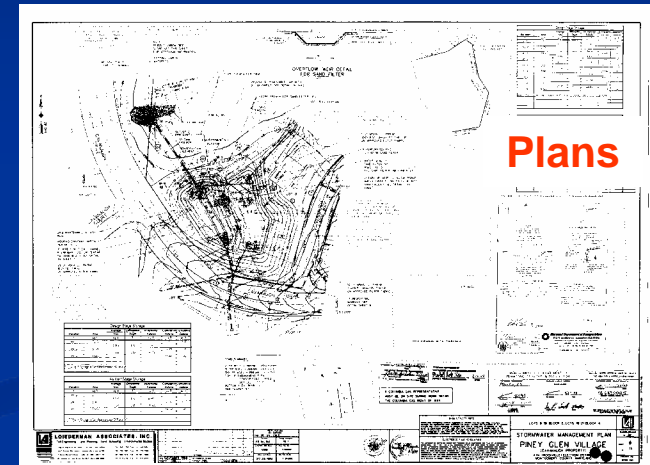
Sediment Control Permit #	9001180692
Sequence Number	259
Property Street Address	Redland Rd
Owner	MCG
Property Management Co.	DEP
Access Street	Redland Rd
ADC Map Book	23406

Activity	Task	MT Hours	People Req.	Task	Description
10	CHANN	1	1	M-REG1	Fastigating knowing, debris removal, and non-structural maintenance

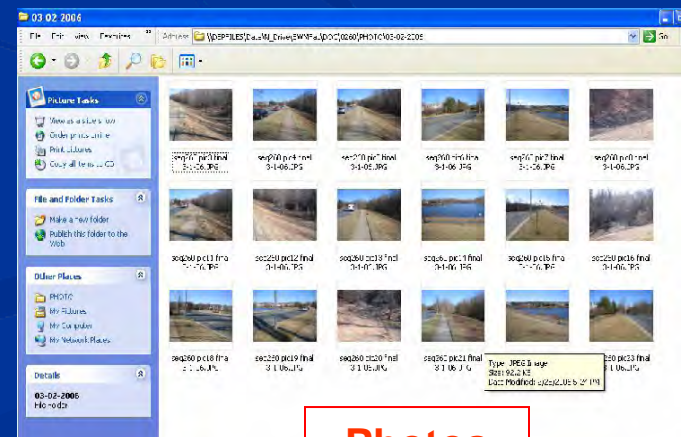
Activity	Store	Part	Description	UTM	Quantity	Price	Line Total
10		AS0041 (DEP)	Removal And Disposal: Woody Debris	TDM	1		
10		AS0043 (DEP)	Herbicide Application: For Lvs	ACR	1		
10		AS0081 (DEP)	Grass Mowing	AC	1		
10		AS0091 (DEP)	Animal Burrow Repair	SA	1		
10		AS0170 (DEP)	EQ Brush Chopper	DAY	1		
10		AS0175 (DEP)	EQ Chain Saw	DAY	1		
10		AS0187 (DEP)	EQ Weed Whacker on Weed Eater	DAY	1		

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Work Orders



Plans



Photos

Aboveground Inspection Procedures

- An inspection is preformed every three years
- The County contracted inspector is notified of facilities due for inspection in a particular month
- The contract inspector performs the inspection on the facility
- The inspection report and photographs of the inspection are delivered to County
- MC.DEP prepares maintenance Repair Report.
- MC.DEP forwards Repair Report to the facility owner (via hard copy of letter & repair report or via e-mail with copy of Work Order).

Aboveground Notification Procedures



- The owner receives a notification letter or e-mail and the inspection report from the County
- The notification letter or e-mail and inspection report informs the owner of the required maintenance and repairs
- The repairs must be completed within 120 days



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Loggell
County Executive

September 30, 2008

Robert Hoyt
Director

Exxon Mobil Headquarters
Joseph V. Mocsary, Regional Engineering and M&R Coordinator
P.O. Box 5839
Falmouth, VA 22403

Work Order No: 14888
Property Owner: Exxon Mobil Corp
Structure Type: SEP (Oil/gal separator)
Asset No: 11888

Property Name: Exxon
Property Address: 15211 Frederick Rd
SW Facility No: 1908.02

Dear Sir or Madam:

This letter is to notify you that your underground stormwater facility will soon be due for an annual maintenance inspection. Owners of underground stormwater facilities are required under Section 19-28 of the Montgomery County Code to perform whatever maintenance is necessary to ensure that the facility remains in proper working condition. In order for you to comply with these requirements, the Department of Environmental Protection (DEP) advises that you pump-out, clean and dispose of all solid waste (sediments, sludge and floatable debris, etc.), and power wash the facility annually.

Please use the following steps to ensure your underground stormwater facility remains in proper working condition:

1. Obtain a contract with a maintenance contractor to perform the annual maintenance. Enclosed is a list of qualified contractors who have met the regulatory requirements. Please be advised that DEP cannot endorse or recommend a contractor.
2. Once the contract is executed, fax the contract to DEP Inspector Mike McElroy, at (240)777-7752.
3. Notify Mr. McElroy at least 48 hours before beginning the maintenance work on your stormwater facility so that a DEP inspector can be present on-site while the work is being performed. Mr. McElroy may be contacted by e-mail at DEP.SWInspections@montgomerycountymd.gov.

DEP will make every effort to cooperate with owners of underground stormwater management facilities. However, it is the responsibility of the owner to ensure the completion of maintenance of all stormwater facilities on their property within 45 days. If upon inspection, DEP finds that the facility has not been maintained as required by law, the owner may be subject to an enforcement action resulting in fines and penalties.

Each owner is responsible for ensuring the on-time completion of all required maintenance of a stormwater facility and that persons entering "confined spaces," as defined at Md. Code Ann., Lab. & Empl. § 5-802 (a) (2), comply with applicable occupational safety and health regulations. For your convenience, we have attached a Designation Of Authorized On-Site Representative form. The purpose of this form is to ensure that the person entering the facility is properly trained and that the property improves communications and is maintained in an effective manner. If you have questions, call 7744.

Sincerely,

Jerry Oden
Field Supervisor
Stormwater Mgmt. Inspection Program

Sandy Spring Meadows - HOC
Robert Goff, Site Manager
3502 Morningwood Drive
Olney, MD 20832

Work Order No: 35705
Property Owner: HOC
Structure Type: PDQN(Pond-dry, quantity control only)
Asset No: 10914

Hard Copy Notification Letter

Facility Information at Top of Letter

Property Name: Sandy Spring Meadows
Property Address: Loganberry Ct
SW Facility No: 72

Inspection Report



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Leggett
County Executive

March 27, 2009

Inspection Repair Report


Hard Copy
of Repair
Report

Property Owner : George Meany Center for Labor Studies
Asset No. : 11434
Property Address : 10,000 New Hampshire Ave
Structure Type : PDWT(Pond-wet, quality and quantity control)
Property Name : George Meany Center for Labor
SW Facility No. : 1042.02

	Description	Comments
10	F-INSP Final Inspection required by DEP once repairs completed	
20	S-PS02 Repair corrosion, re-coat or re-paint components of principle spillway	
40	SD-OF03 Repair damaged or deteriorated storm drain pipes	Repair separation and exposed metal in infall pipe.
50	SD-OF03 Repair damaged or deteriorated storm drain pipes	Parge second infall barrel and repair joint separation.
60	S-DP04 Remove accumulated sediment & debris from dry pool	
70	S-RO02 Other Structural Repair (see comments)	Parge concret inlet in pilot channel

Aboveground Maintenance Notification Procedures

Infor EAM

 **Print Short WO Cards**

Version 8.2
Date 03/23/2010 17:42
User ODENJ
Organization DEP [Department of Environmental Protection]
Work Order 23310 [BR Repairs: Calverton-Galway Local Park (seq#202207.02)]
Print Attachments No
Print MEC Attachments No
Search MEC Work Orders No

Work Order No.

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**Equipment
Or
Asset
Number
vs.
Sequence
Number**

Infor EAM **Work Order No.**
Print Short WO Cards

Work Order 23310 (DEP) BR Repairs: Calverton-Galway Local Park (seq#202207.02) Scheduled Start 08/11/2009
Status Released/Open Date
Parent Work Order
Department SWM-MNCPPC-DEP Parks Maintained by DEP WO Type REP
Class AGNS
Priority
Warranty N
Safety N
Equip Criticality
Assigned To EDMISC
Assigned By

Standard WO REPWOAGBR BR Repairs:
Equipment 13020 (DEP) Calverton-Galway Local Park
Location INSP-REG01 (DEP) Inspection Region 1
Equipment:
Manufacturer
Equipment Model
Equipment Serial
Number
Date Started
Estimated Hours 2
Estimated Cost 0.00
Actual Cost 0.00
Date Completed 02/29/2008

Equipment Custom Fields

Sequence Number 202207.02
Sediment Control Permit # 97A210001
Access Street Fairland Rd
Stormwater File Number NS96007
Owner MNCPPC
Property Management Co. Park Development Division

Work Order Custom Fields

Letter Type AGNSLTR-120
Date Letter Sent 06/02/2008

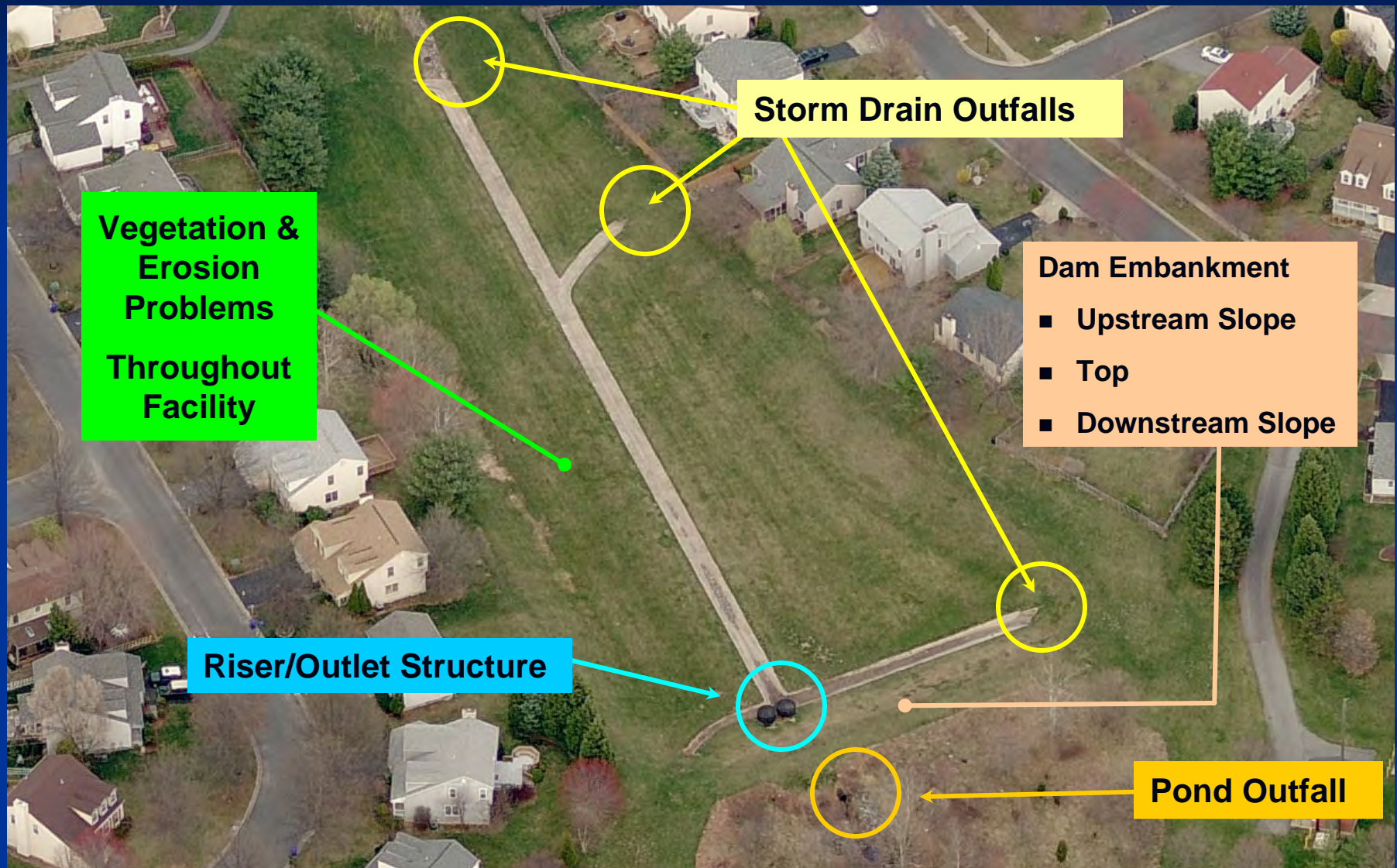
Activity	Trade	Est. Hours	People Req.	Task	Description
10	INSP	1	1	F-INSP	Final inspection required by DEP once repairs completed A Final Inspection must be performed by DEP once repairs are completed. Contact your DEP Inspector to schedule the Final Inspection.
20	CMAINT	1	1	N-ACS01	Remove woody growth & undesirable vegetation within 10' of accessory structures

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REPAIR WORK ORDER

**Electronic Repair Report (e-mail attachment)
from MC.Stormwater@montgomerycountymd.gov**

Inspection of Facility Includes All Components



Aboveground Maintenance Procedures

1. Pre-Bid Meeting* is recommended between the facility owner, prospective contractors and DEP Inspector.
2. Pre-Construction Meeting* is required with the owner, owner's contractor and DEP Inspector.

Purpose:

- Define the scope of maintenance and repairs
- Goal: to bring the facility to as-built condition.



**** These meetings are extremely important because work descriptions on the work orders are often very brief. Additionally, between the time of inspection and the time the work is to be done, site conditions may have changed because of storm events or other reasons.***

Aboveground Maintenance

- Maintenance Tasks are divided into two (2) categories:
 - Non-Structural (Aesthetic) Maintenance
 - Examples:
 - trash pick-up and disposal monthly
 - Mowing and removal of trees and woody vegetation
 - Structural Maintenance
 - Examples:
 - Concrete repairs
 - Riser/Control Structure and Barrel (pipe) repairs

General Non-Structural Maintenance Requirements

Non-Structural (Aesthetic) Maintenance Responsibilities for Stormwater Management Facilities				
MAINTENANCE TYPE	STORMWATER FACILITY TYPE			
	Dry Ponds	Wet Ponds	Sand Filters	Infiltration Trenches
Grass Cutting and Mowing <i>(Perform at least twice a year)</i>	<ul style="list-style-type: none"> Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation 25 feet around the control structure and remove all cut vegetation Inlet channels in pond and remove all cut vegetation Channels, headwalls, and pipes into pond area Outlet channel and remove all cut vegetation 	<ul style="list-style-type: none"> Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation Outlet channel and remove all cut vegetation Channels, headwalls, and pipes within pond area 	<ul style="list-style-type: none"> In and around the sand filter and remove all cut vegetation Prevent cut grass from blowing onto sand filter during mowing Prevent grass from growing in sand filter 	<ul style="list-style-type: none"> Around the trench and remove all cut vegetation from the trench Prevent cut grass from blowing onto the trench during mowing Prevent grass from growing in the trench (if designed with stones)
Woody Vegetation Cutting and Removal <i>(Perform at least twice a year)</i>	<ul style="list-style-type: none"> All trees and woody vegetation from the upstream and downstream dam slopes All trees and woody vegetation from the top of the dam All trees and woody vegetation from inlet and outlet channels All trees and woody vegetation within 25 feet of controls structure Prevent trees and woody vegetation from growing in or around the flow control 	<ul style="list-style-type: none"> All trees and woody vegetation from the upstream and downstream dam slopes All trees and woody vegetation from the top of the dam All trees and woody vegetation from outlet channel All trees and woody vegetation from channels, headwalls, and pipes into pond area Prevent trees and woody vegetation from growing in or around the flow control) 	<ul style="list-style-type: none"> All trees and woody vegetation in sand filter Prevent trees and woody vegetation from growing in sand filter 	<ul style="list-style-type: none"> All trees and woody vegetation in the trench Prevent trees and woody vegetation from growing in trench
Trash and Debris Removal <i>(Monthly)</i>	<ul style="list-style-type: none"> From all areas in and around the pond 	<ul style="list-style-type: none"> From all areas in and around the pond 	<ul style="list-style-type: none"> From all areas in and around the sand filter 	<ul style="list-style-type: none"> From all areas in and around the trench
Other		<ul style="list-style-type: none"> Verify that all pond safety signs are in place 	<ul style="list-style-type: none"> Discourage children from playing with the sand and damaging and removing the plastic caps. 	<ul style="list-style-type: none"> Discourage children from playing with the stones and damaging and removing of the plastic caps.

This chart is available for download on our website.

General Non-Structural Maintenance Requirements

Non-Structural (Aesthetic) Maintenance Responsibilities for Stormwater Management Facilities				
MAINTENANCE TYPE	STORMWATER FACILITY TYPE			
	Constructed Wetlands	Vegetated Pools or Plunge Pools	Bioretention	Infiltration Basin or Pond/Sand Filter
Grass Cutting and Mowing <i>(Perform at least twice a year)</i>	<ul style="list-style-type: none"> Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation Outlet channel and remove all cut vegetation Channels, headwalls, and pipes into pond area Do not cut or trim special wetland vegetation 	<ul style="list-style-type: none"> All areas of the vegetated pool and remove all cut vegetation 	N/A	<ul style="list-style-type: none"> Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation Channels, headwalls, and pipes into pond area 25 feet around the control structure and remove all cut vegetation Outlet channel and remove all cut vegetation Around the sand filter or trench and remove all cut vegetation Prevent cut grass from blowing onto sand filter or trench during mowing Prevent grass from growing in sand filter or trench (if trench is designed with stone)
Woody Vegetation Cutting and Removal <i>(Perform at least twice a year)</i>	<ul style="list-style-type: none"> All woody vegetation that is not part of the wetland design (consult with DEP) All trees and woody vegetation from channels, headwalls, and pipes into pond area Prevent trees and wood vegetation from growing on or around the structure (unless authorized by DEP) 	<ul style="list-style-type: none"> All woody vegetation from within and around the structure Prevent trees and woody vegetation from growing on or around the structure (unless authorized by DEP) 	N/A	<ul style="list-style-type: none"> All trees and woody vegetation from the upstream and downstream dam slopes All trees and woody vegetation from the top of the dam All trees and woody vegetation outlet channels All trees and woody vegetation within 25 feet of controls structure All trees and woody vegetation from sand filter or trench Prevent trees and woody vegetation from growing in or around the flow control
Trash and Debris Removal <i>(Monthly)</i>	<ul style="list-style-type: none"> From all areas of the wetland 	<ul style="list-style-type: none"> From all areas of the vegetated pool 	<ul style="list-style-type: none"> From all areas of the Bioretention area 	<ul style="list-style-type: none"> From all areas of the structure
Other	<ul style="list-style-type: none"> Verify that all pond safety signs are in place Do not cut or trim special wetland vegetation 		<ul style="list-style-type: none"> Prevent snow and ice piles from accumulating on top of Bioretention area and killing plants Re-mulch every 2 to 3 years Do not remove, cut, or trim special woody and herbaceous Bioretention vegetation 	<ul style="list-style-type: none"> Discourage children from playing with the sand filter sand and trench stones Discourage children from damaging and removing plastic caps

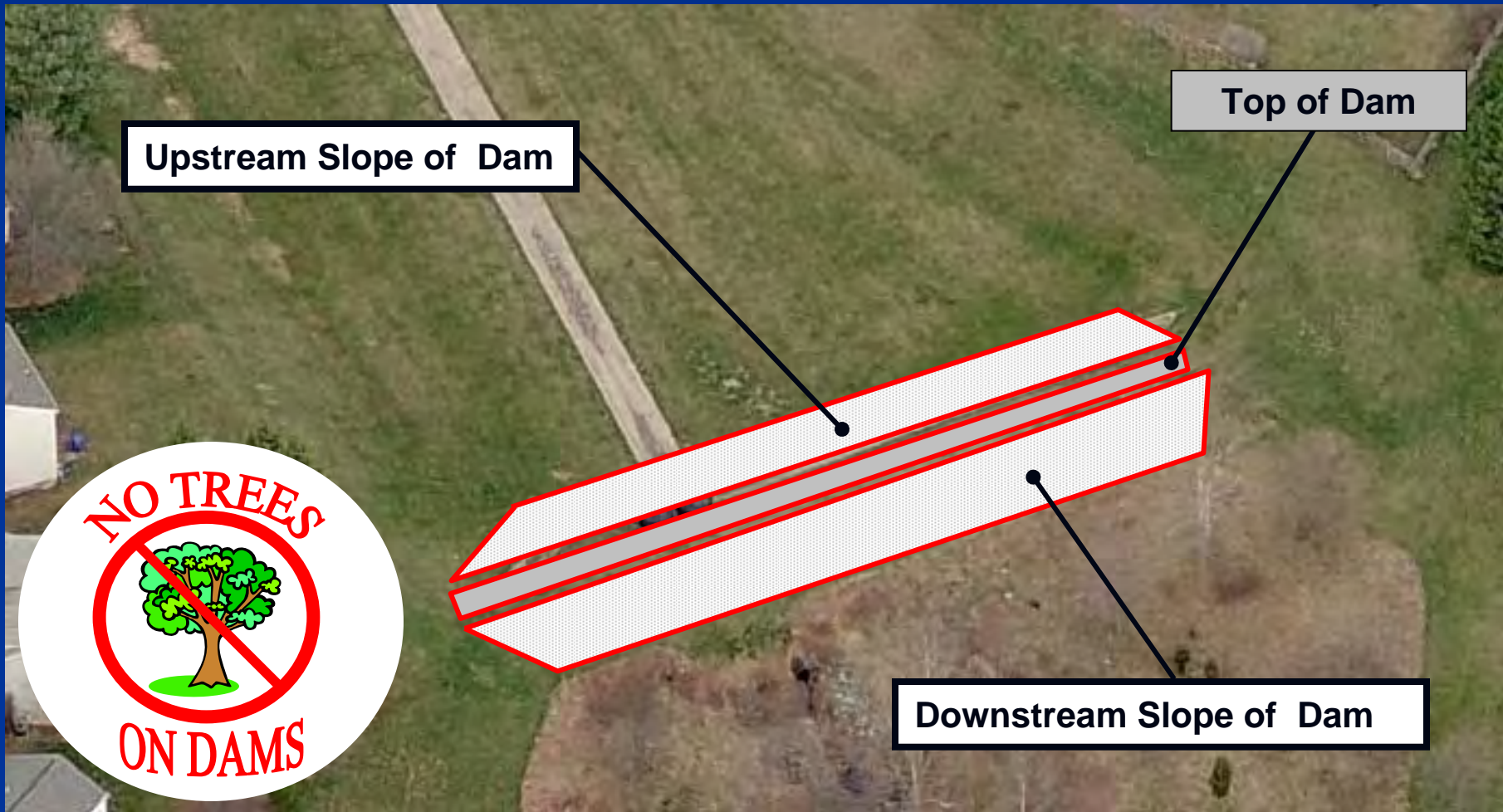
This chart is available for download on our website.

Pond Maintenance



Mowing > Twice A Year

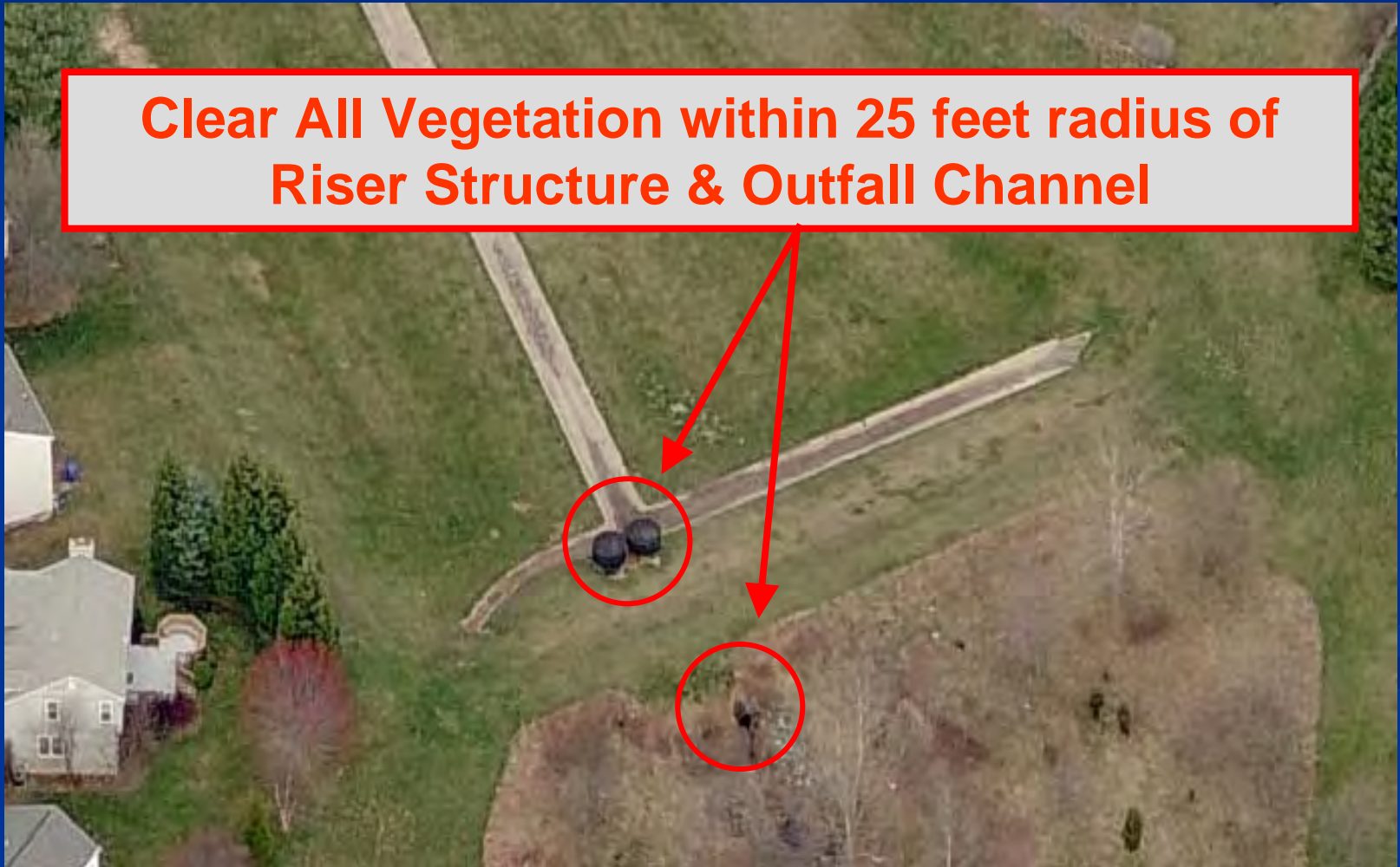
- Once in the Spring
- Once in the Fall



Mowing > Twice A Year

- Once in the Spring
- Once in the Fall

**Clear All Vegetation within 25 feet radius of
Riser Structure & Outfall Channel**



Grass Cutting and Mowing

(Perform at least twice a year)

- 25 feet around the control structure and remove all cut vegetation
- Inlet channels in pond and remove all cut vegetation
- Channels, headwalls, and pipes into pond area
- Outlet channel and remove all cut vegetation

Woody Vegetation Cutting & Removal

(Perform at least twice a year)

- Remove all trees and woody vegetation from the upstream and downstream dam slopes⁽¹⁾
- Remove all trees and woody vegetation from the top of the dam⁽¹⁾
- Remove all trees and woody vegetation from inlet and outlet channels⁽¹⁾
- Remove all trees and woody vegetation within 25 feet of controls structure⁽¹⁾
- Prevent trees and woody vegetation from growing in or around the flow control⁽¹⁾

⁽¹⁾ See Next Slide



Woody Vegetation Cutting & Removal

(Perform at least twice a year)

(1) Please consult with MC.DEP before removing any trees on dams.

Generally, trees with a diameter less than eight inches (8") in diameter may be cut flush with the ground and left in place and treated with a silvicide.

For trees greater than eight inches (8") in diameter, all woody material needs to be removed to twenty-four inches below the ground surface and the resultant voided backfilled with approved soil, well compacted and stabilized with grass.



Typical Problems



Clogged
Outlet
Structures



Riser Structure In Here Somewhere

Overgrown Vegetation



Typical Problems



**Outfall
Channels
Full of
Silt**



Clogged Pipes

Typical Problems



Trash Rack Corrosion

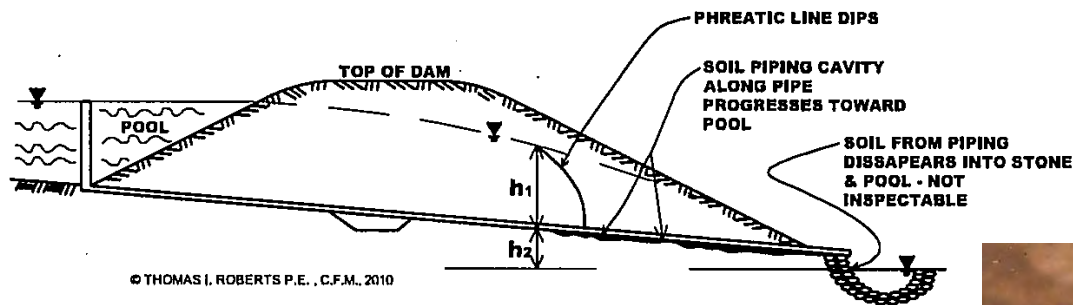


Spalling of Concrete

Serious Problems Requiring Immediate Attention

“Piping” Through Dam Embankments

SOIL PIPING ALONG CONDUIT



Daylight



Serious Problems Requiring Immediate Attention

Sink Holes On Dam Embankments



Trash & Debris in Outlet/Riser Structures & Missing Manhole Covers



Serious Problems Requiring Immediate Attention



Obvious Structural Failures



Beaver Lodges that Block Primary Outlet Works

Pond Safety Signs

Pond Safety Signs are required for all wet ponds or water impoundments that retain a permanent pool more than twenty-four inches (24”).

- Verify that all pond safety signs are in place if required.



Pond Safety Signs

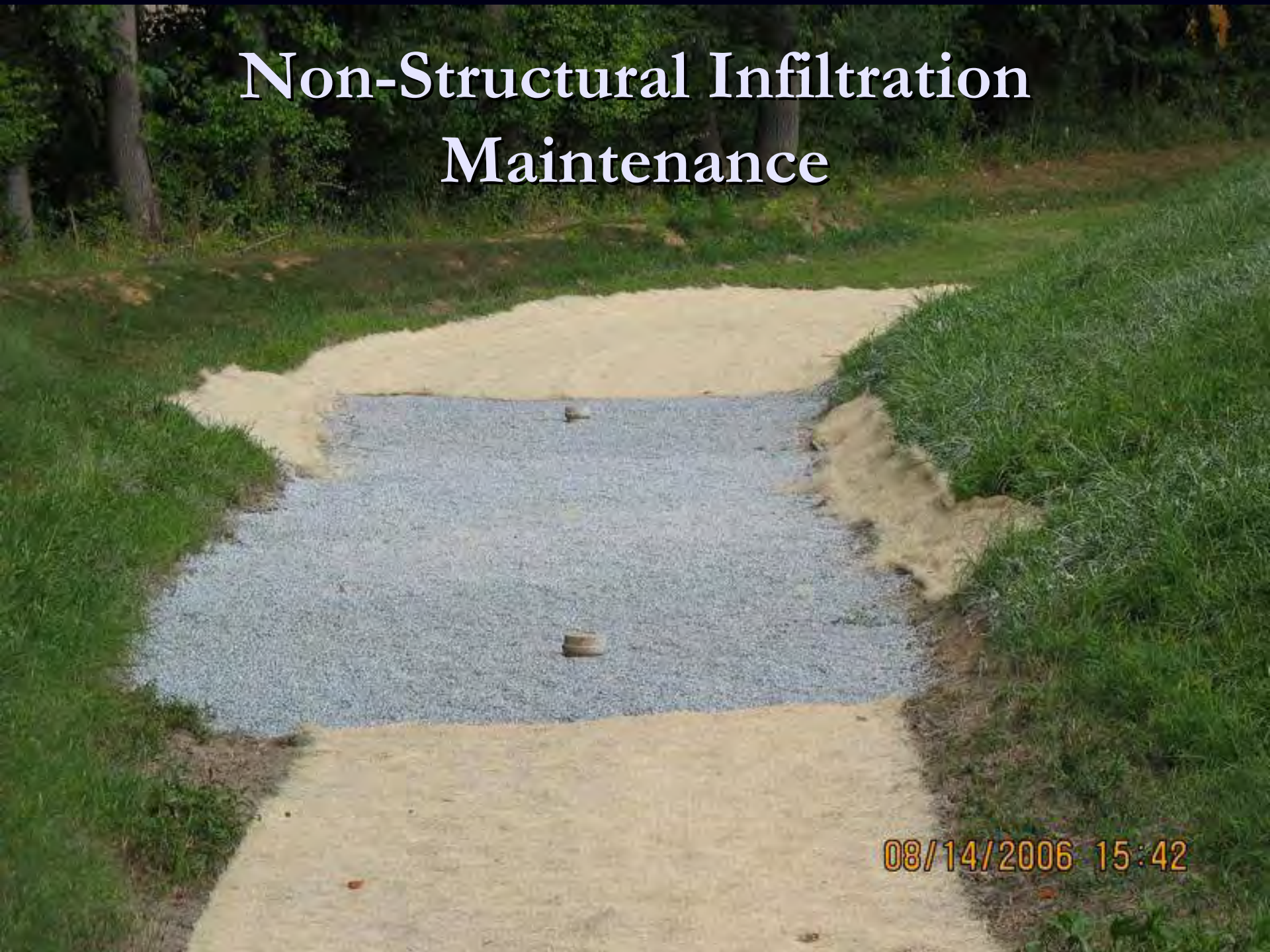
The Department of Environmental Protection (DEP) will provide pond warning signs for residential & government stormwater management ponds. If you e-mail or fax your pond plan to the DEP, DEP can determine the number and locations of necessary signs. The DEP Inspector can meet the sign installer on site to furnish the signs and verify the sign locations.

The signs are metal, 18” tall and 24” wide. They must be installed on either metal posts (‘U’ channel, 2 lbs/LF or 2” square steel tube, 12 gauge) or 4”x 4” wooden posts. The wooden posts can be installed per Maryland State Highway Administration (MSHA) Standard Detail 812.01 except the posts only need to be buried 30” into the ground. The signs must be attached with bolts (3” long lag screws for wood posts). The bottom of the sign must be six feet (6’) above the ground.

Signs mounted in the water shall be affixed to a metal post. The post must be driven five feet (5’) into the pond bottom and the bottom of the sign must be a minimum of three feet (3’) above the normal water surface elevation.

Signs mounted on a fence shall be mounted near the of the fence and must be fastened to a fence post, either with a bolt through the post or with a lag screw on a wooden post.

Non-Structural Infiltration Maintenance



08/14/2006 15:42

Non-Structural Infiltration Maintenance

Sand Filters

- Prevent cut grass from blowing onto sand filter during mowing
- Discourage children from playing with the sand and damaging and removing the plastic caps



Non-Structural Infiltration Maintenance

Sand Filters



Primary Problem: Vegetative Encroachment

Non-Structural Infiltration Maintenance

Sand Filters

Sand Filter Repairs:

1. Remove Vegetation
2. Rake/Till Surface Sand Layer
3. Remove and Replace Top Layer of Sand if significantly contaminated.



Non-Structural Infiltration Maintenance

Infiltration Trenches

- Prevent cut grass from blowing onto the trench during mowing
- Discourage children from playing with the stones and damaging and removing of the plastic caps.



Mowing



Blow Grass Clippings Away from Ponding Areas & Filter Media In Infiltration Facilities Such As Sand Filters and Stone Infiltration Trenches.

Fall Leave Clean-Up

Remove Leaves from Surface of Filter Media

(e.g., sand, stone, mulch, etc.)



What happens if you don't comply with the maintenance procedures?

- The DEP Inspector may issue a civil citation to the owner if the required repairs and maintenance is not completed within the compliance date.
- Call Ed Edmiston @ 240-777-7721 or Steve Pullum @ 240-77-7780 if there is a delay in the schedule to request an extension.
- If the extension is approved, the DEP Inspector will fax or e-mail an extension approval letter.



Final Inspection

- The MC.DEP must be notified so that a final inspection can be conducted so the Work Order may be closed or “finalized”.
Steve Pullum or Ed Edmiston for a final inspection
- If maintenance and repair work is satisfactory:
 - The results of the final inspection are put into the MC.DEP database.
 - The MC.DEP Inspector will issue an Inspection Report to the property owner stating the work is complete and acceptable.



Final Inspection



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Leggett
County Executive

Robert Hoyt
Director

March 20, 2009

First Aquarius Homes Assoc.
c/o Miss. Thibley

Assel Number (s): 10977
Work Order Number (s): 33471
Sequence Number(s): 1065
Property Address: Homecrest Road

Dear Sir or Madam:

On 3/19/09 the Department of Environmental Protection performed an inspection on the stormwater facility listed above. Our inspection confirms that the facility has met all repair requirements and no further action is required at this time. The facility work order was finalized on 3/20/09. Thank you for your cooperation and assistance in completing this project.

Please continue routine maintenance as necessary to maintain the facility(ies).

If you have any questions, please feel free to contact me at 240-777-7780.

Sincerely,

Stephen M. Pullum

Stephen Pullum, Stormwater Facility Inspector
Stormwater Facility Maintenance Program

Watershed Management Division

255 Rockville Pike, Suite 120 • Rockville, Maryland 20850 • 240-777-7700 • 240-777-7715 FAX
www.montgomerycountymd.gov

Notification of
satisfactory
maintenance and
repair is generated
and faxed or
e-mailed to the
owner.

Questions???



Git- R- Done !